

FOUR NOVELTIES AND A LECTOTYPIFICATION IN *MATELEA* (APOCYNACEAE: ASCLEPIADOIDEAE) FROM HISPANIOLA

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ABSTRACT

On-going study of subtribe Gonolobinae (Apocynaceae: Asclepiadoideae) in the West Indies resulted in the discovery of four new species from Hispaniola: ***Matelea corynephora***, ***M. phainops***, ***M. rhynchocephala***, and ***M. torulosa***. *Matelea pauciflora* is lectotypified.

RESUMEN

Se describen cuatro especies nuevas de *Matelea* de la Española como resultado del estudio de la subtribu Gonolobinae (Apocynaceae: Asclepiadoideae) en las Indias Occidentales: ***Matelea corynephora***, ***M. phainops***, ***M. rhynchocephala*** y ***M. torulosa***. Se lectotipifica *Matelea pauciflora*.

Gonolobus pauciflorus Spreng. (Apocynaceae: Asclepiadoideae) was described in 1824 based on a Bertero specimen from Hispaniola (P!). Schlechter (1899) recognized the species, noting that at the time, it still remained known only from the Bertero collection. Erik Ekman subsequently contributed numerous new collections that were referred to *G. pauciflorus* by Ignatz Urban of B (fide annotations) and later accepted as well by Alain H. Liogier (fide annotations), author of the most recent treatment of Asclepiadoideae for Hispaniola (Liogier 1994). Woodson (1941) transferred *G. pauciflorus* to *Matelea* Aubl. as one of 105 new combinations that resulted in a very broadly circumscribed genus that is, in large part, still currently followed (see Stevens 2005). According to Woodson's (1941) generic concept, *Matelea* is distinguished from *Gonolobus* Michx. in part by the absence of laminar dorsal anther appendages (Cd sensu Kunze 1995) in the former. A seemingly related species—*Matelea linearipetala* Alain—was described in 1988 from a single 1926 Haitian specimen (*Ekman H7136, S!*) not seen by Urban. However, in the course of on-going systematic study of subtribe Gonolobinae in the West Indies, it has become clear that *M. pauciflora* (Spreng.) Woodson sensu Urban and Liogier contains four additional undescribed species. The four new species are described and illustrated below. For clarity, amplified descriptions, as well as illustrations, are also provided for *M. linearipetala* and *M. pauciflora*. The six species are nearly indistinguishable in the absence of flowers—each bearing small, opposite, ovate-oblong leaves—but differ dramatically in various floral characteristics. A key follows. Corona terminology primarily follows Liede and Kunze (1993) and Kunze (1995), although it is recognized that additional work is needed to clarify family-wide homology (see Endress & Bruyns 2000; Livshultz 2003).

1. Calyx colleters 2 per sinus; long eglandular sharp trichomes (ca. 0.2 mm) of the pedicels retrose; corolla lobes ocellate (i.e., each bearing a single white spot on the adaxial surface near the apex); gynostegial corona (C(is)) columnar at the base and appearing as a ca. 0.6 mm tall stipe; stylar head lacking a terminal appendage _____ ***M. phainops***
1. Calyx colleters 0–1 per sinus; long eglandular sharp trichomes of the pedicels predominantly, if

not exclusively, antrorse or spreading; corolla lobes ocellate or not; gynostegial corona (C(is)) not basally columnar nor appearing as a stipe; stylar head with or without a terminal appendage.

2. Gynostegial corona (C(is)) with a broad, hardening, lobe-like, translucent yellow-golden secretion in the interstaminal position (i.e., between the raised portions of the corona segments that rise to meet the lower portion of the anther in the staminal position); interstaminal gynostegial corona (Ci) unlobed; anther wings horizontally divergent; stylar head exhibiting a terminal appendage or not.

3. Gynostegial corona (C(is)) ca. 0.6–0.7 mm tall, staminal gynostegial corona (Cs) unlobed apically (i.e., descending smoothly in an arc from the apical ridge to the base); anther wings slightly longer than the corpusculum; terminal appendage of stylar head absent, sometime a short protuberance present, to 0.2 mm tall _____ **M. linearipetala**

3. Gynostegial corona (C(is)) > 1 mm tall, staminal gynostegial corona (Cs) slightly vertically lobed apically (i.e., each ridge slightly rising vertically immediately before descending to the base); anther wings slightly shorter than the corpusculum; terminal appendage of stylar head conic (volcano-shaped; broader at the base than at the apex), 0.9–1.2 mm tall _____ **M. pauciflora**

2. Gynostegial corona (C(is)) lacking a hardening, lobe-like, translucent yellow-golden secretion in the interstaminal position; interstaminal gynostegial corona (Ci) lobed (or if not, then the stylar head with a knob-shaped terminal appendage); anther wings horizontally convergent at least at the apex or parallel; stylar head exhibiting a terminal appendage.

4. Calyx colleters absent; corolla lobe bases each with two round, distinct, lateral thickenings, basal lobe surfaces concave (“scooped-out”); interstaminal gynostegial corona (Ci) unlobed, staminal gynostegial corona (Cs) apically ungrooved, unlobed laterally, scallop-shaped in broad outline, margins entire or somewhat undulating; anther wings parallel; terminal appendage of stylar head capitate (e.g., reminiscent of a round door knob), to 1.1 mm tall _____ **M. torulosa**

4. Calyx colleters 1 per sinus; corolla lobe bases lacking round lateral thickenings, lobes plane; interstaminal gynostegial corona (Ci) shallowly to broadly lobed, staminal gynostegial corona (Cs) apically grooved or laterally lobed, not scallop-shaped; anther wings convergent at least apically; terminal appendage of stylar head clavate or narrowly elongate-conic (obelisk-shaped), > 1.8 mm tall.

5. Interstaminal gynostegial corona (Ci) a large lobe, staminal gynostegial corona (Cs) grooved apically, lacking two broad, lateral lobes; terminal appendage of stylar head clavate _____ **M. corynephora**

5. Interstaminal gynostegial corona (Ci) a shallow lobe, staminal gynostegial corona (Cs) apically not grooved, broadly lobed laterally to appear 3-lobed; terminal appendage of stylar head narrowly elongate-conic (obelisk-shaped) _____ **M. rhynchocephala**

Matelea corynephora Krings, sp. nov. (**Fig. 1**). TYPE: HAITI: Ile la Tortue, la Vallée, top of Morne Baranca, ca. 300 m, 21 Mar 1928 (fl), E.L. Ekman H9740 (HOLOTYPE: S!).

Species nova *Matelea* Aubl. differt a *Matelea* antillanarum corona magnilobata interstaminer, non lobata staminer, gynostegio corynephor.

Slender, woody vine. Latex unknown. Stems ca. 1.8 mm diam., pubescent, glandular-capitate trichomes throughout, ca. 0.09 mm long, eglandular sharp trichomes mostly in 2 lines, one on each side of the stem, retrorse, ca. 0.4 mm long. Leaves opposite, simple, blades oblong to linear-oblong, (7.2–)12–25 × (3.6–)5.2–8.6 mm, apex obtuse, apiculate, base broadly cuneate to rounded, margins entire, adaxial surface dark green, glossy on drying, glabrous or minutely pubescent along midvein with short glandular-capitate trichomes, abaxial surface pubescent along midvein and sometime secondary veins, trichomes mostly glandular-capitate, eglandular sharp trichomes few and scattered, colleters 2; petioles 3.8–7 × ca. 0.6 mm, glandular-capitate trichomes dense, ca. 0.1 mm long, eglandular sharp trichomes dense, antrorse, ca. 0.2 mm long, both trichome types found throughout, but the longer sharp trichomes tending to be slightly denser along the adaxial

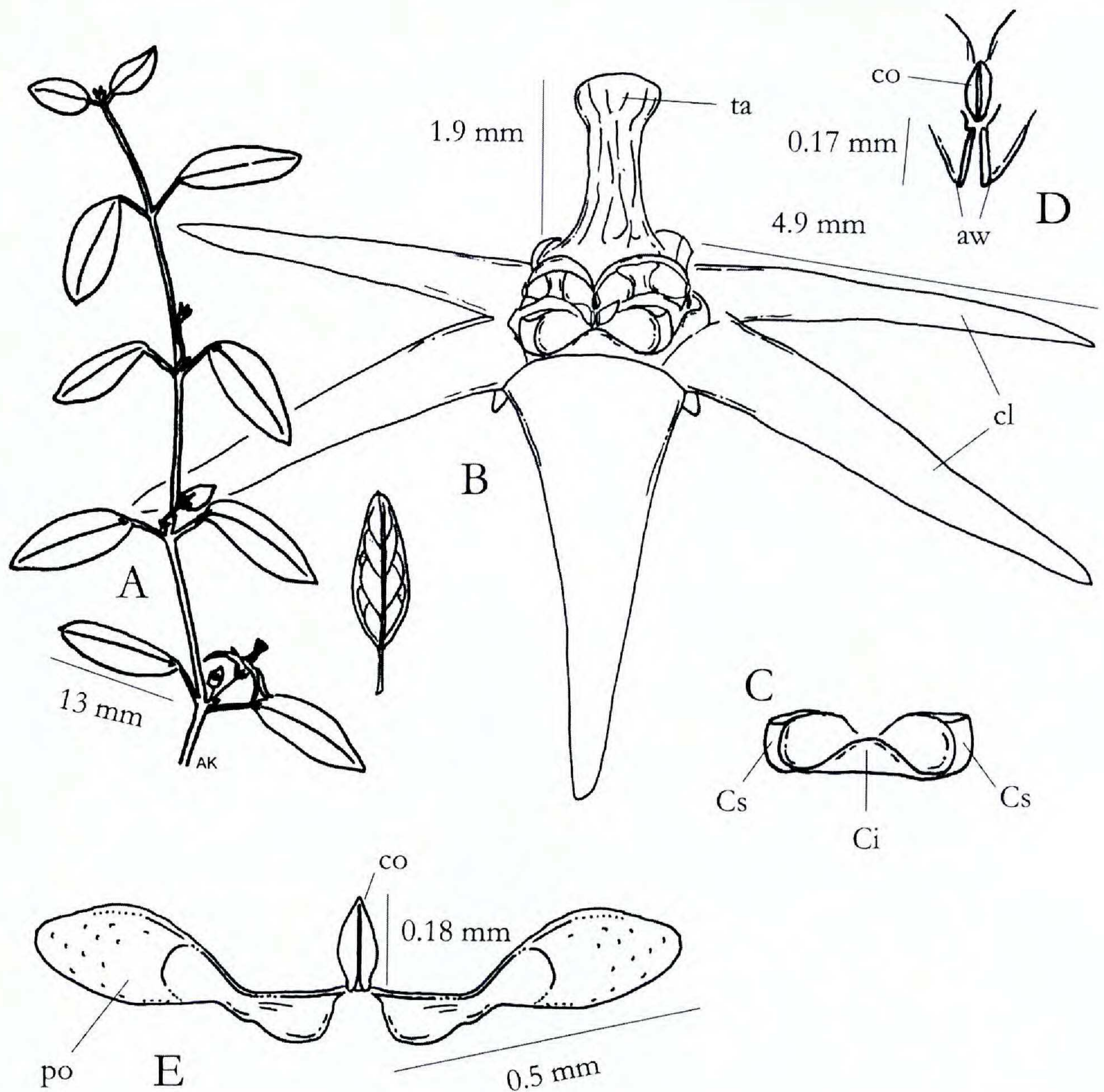


FIG. 1. *Matelea corynephora* Krings: **A**, habit and detail of leaf; **B**, flower with clavate terminal appendage of stylar head; **C**, gynostegial corona—note the laterally unlobed Cs, and the rounded lobe of the Ci; **D**, corpusculum and anther wings; **E**, pollinarium, caudicle shape approximate. Based on *Ekman H9740* (S). aw = anther wings; Ci = interstaminal gynostegial corona; cl = corolla lobes; co = corpusculum; Cs = staminal gynostegial corona; po = pollinium; ta = terminal appendage of stylar head.

petiolar ridge; stipular colleters 2, one on each side of petiole base, ca. 0.3 mm long. Inflorescence racemiform, peduncles $0.6-1.7 \times$ ca. 1 mm, glandular capitate trichomes absent, eglandular sharp trichomes 0.2–0.3 mm long, antrorse; pedicels $3-5 \times$ ca. 0.6 mm, glandular-capitate trichomes dense, ca. 0.04 mm long, longer eglandular sharp trichomes dense, ca. 0.2 mm long, antrorse. Calyx 5-lobed, lobes oblong-ovate, ca. 0.9×0.6 mm, apices obtuse, margins entire, adaxial surface glabrous, abaxial surface very sparsely pubescent with eglandular trichomes scattered near center and along the margins; colleters 1 per sinus. Corolla subrotate, bases campanulate, tube ca. $0.9-1.2 \times 1.2-1.3$ mm, 5-lobed, lobes imbricate in bud (not or only slightly dextrorse), green (fide collectoris), lanceolate-linear, $4.5-5.5 \times 1.6-1.8$ mm, apex obtuse, at least some ocellate (i.e., each lobe bearing a white eye adaxially at its apex), adaxial surface glabrous, abaxial surface glabrous or very

sparsely pubescent with trichomes eglandular. Faucal annulus (corolline corona or Ca) indistinct. Gynostegial corona of fused staminal (Cs) and interstaminal parts (Ci), ca. 0.7 mm tall, not appearing as a stipe, Cs rising to meet the bottom of the anther, rising segment lacking two broad, lateral lobes, but grooved apically, Ci broadly lobed; laminar dorsal anther appendages (Cd) absent. Pollinarium: corpuscula dark reddish-brown, ca. 0.15 mm long; pollinia borne horizontally or with the cavity slanting upwards at an angle, ovate, ca. 0.37×0.27 mm. Styler head with a terminal appendage, appendage clavate, 1.9–2.2 mm long, 1.4–1.5 mm wide at the apex, generally broader at the apex than at the base, papillate throughout, a tuft of eglandular sharp trichomes present in the center of the apex, trichomes ca. 0.3 mm long. Follicles unknown.

Distribution.—Apparently endemic to Haiti [known only from the type].

Etymology.—The specific epithet refers to the conspicuous, clavate, terminal styler head appendage.

Discussion.—*Matelea corynephora* appears closely related to *M. rhynchocephala* (Fig. 5) and *M. torulosa* (Fig. 6)—both latter species also exhibiting a styler head with a terminal appendage. All three can be easily distinguished by the shape of the gynostegial corona, as well as that of the appendage (see key above and Figs. 1, 5–6). All three lack the broad, translucent yellow-golden, hardening secretions in the interstaminal position as seen in *M. linearipetala* (Fig. 2) and *M. pauciflora* (Fig. 3).

Matelea linearipetala Alain, *Phytologia* 64:346. 1988. (**Fig. 2**). TYPE: HAITI: on olig. limestone, ca. 200 m, Massif des Matheux, Thomazeau, Morne à Cabrits, a vine, fr. “luteis,” 24 Oct 1926 (fl & fr), *E.L. Ekman H7136* (HOLOTYPE: S!) [n.v. Urban].

Slender, woody vine. Latex unknown. Stems ca. 0.9 mm diam., pubescent in two lines, less densely so with age, glandular-capitate trichomes, ca. 0.08 mm long, eglandular sharp trichomes to 0.45 mm long, retrorse. Leaves opposite, simple, blades oblong, oblong-ovate, or ovate, $17\text{--}45 \times 9\text{--}21$ mm, apices obtuse to rounded, apiculate, bases rounded to truncate, margins entire, adaxial surface dull glabrous, except minutely pubescent along the midvein, glandular-capitate trichomes ca. 0.08 mm long, eglandular sharp trichomes absent, abaxial surface glabrous, except minutely pubescent along the veins, glandular-capitate trichomes ca. 0.08 mm long, eglandular sharp trichomes very sparse if present, ca. 0.2 mm long, colleters 2; petioles $4.4\text{--}17 \times$ ca. 0.4 mm, densely pubescent throughout, glandular-capitate trichomes ca. 0.07 mm long, eglandular sharp trichomes very sparse, ca. 0.3 mm long, antrorse to antrorse-appressed; stipular colleters 2, one on each side of petiole base, ca. 0.3 mm long. Inflorescence racemiform, peduncles $0.6\text{--}2 \times$ ca. 0.7 mm, essentially glabrous; pedicels $2.5\text{--}5 \times$ ca. 0.7 mm, densely pubescent throughout, glandular-capitate trichomes ca. 0.08 mm long, eglandular sharp trichomes absent or more or less uniform throughout, though sparsely so, ca. 0.18 mm long, predominantly antrorse or spreading. Calyx 5-lobed, lobes lanceolate to ovate-oblong, $1.7\text{--}2 \times 0.8\text{--}1.2$ mm, apices obtuse, pubescent, glandular-capitate trichomes ca. 0.08 mm long; colleters 1 per sinus. Corolla subrotate, bases subcampanulate, tube ca. 0.8×1 mm, 5-lobed, lobes imbricate in bud (not or only slightly dextrorse), green (fide collectoris), apparently not ocellate, linear lanceolate, $4.8\text{--}6.5 \times 1.6\text{--}2$ mm, apices obtuse, margins entire, adaxial surface glabrous, reticulate at least on drying, abaxial surface glabrous, except tube pubescent, glandular-capitate trichomes ca. 0.08 mm long. Faucal annulus (corolline corona or Ca) indistinct. Gynostegial corona of fused staminal (Cs) and interstaminal parts (Ci), Cs rising to meet the lower portion of the anther, rising segment a narrow ridge, triangular when

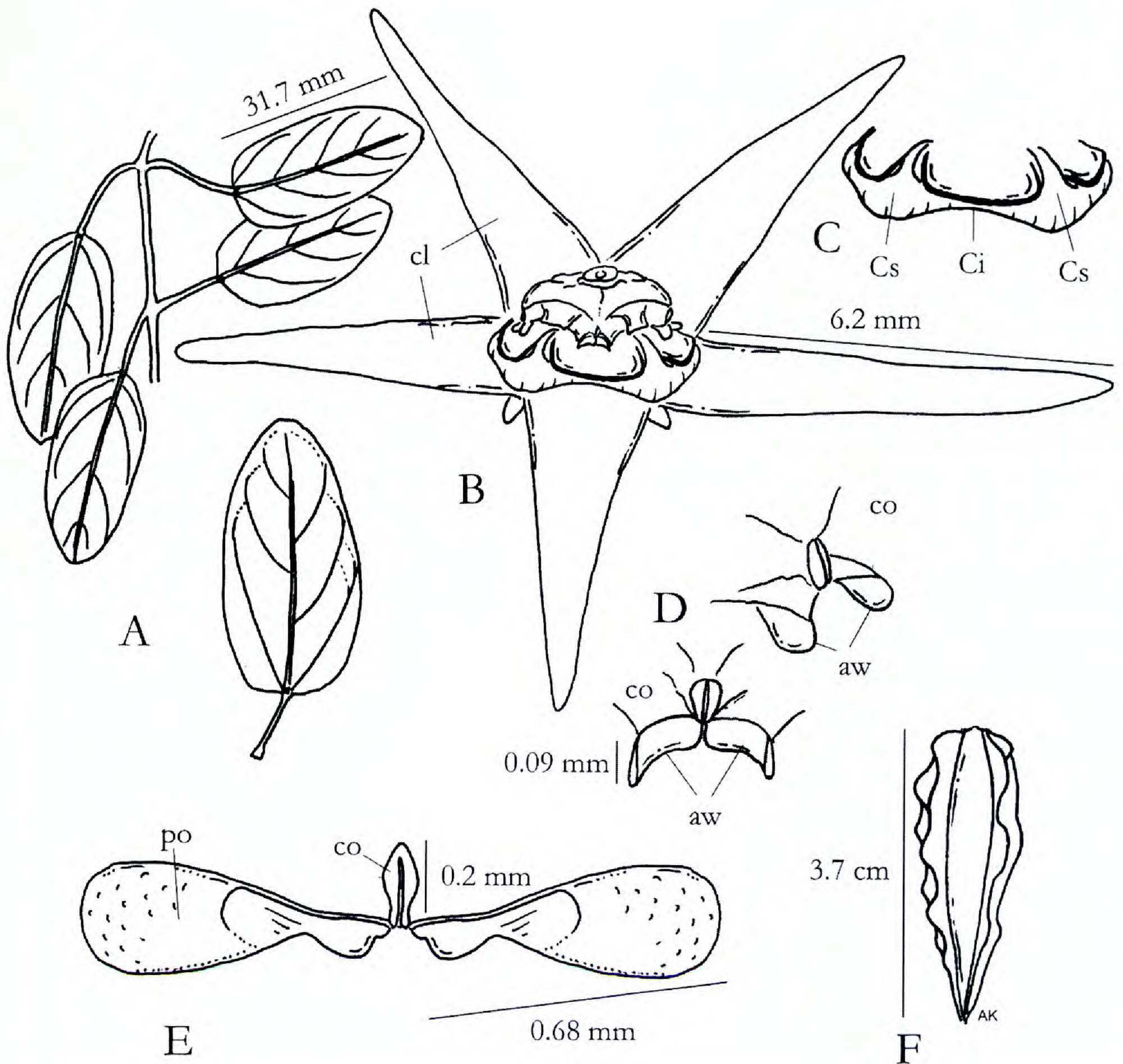


FIG. 2. *Matelea linearipetala* Alain: **A**, habit and leaf detail; **B**, flower; **C**, gynostegial corona; **D**, corpuscula and anther wings; **E**, pollinarium, caudicle shape approximate; **F**, follicle. Based on Ekman H7136 & H9067 (S). aw = anther wings; Ci = interstaminal gynostegial corona; cl = corolla lobes; co = corpusculum; Cs = staminal gynostegial corona; po = pollinium.

viewed directly from the front, neither laterally nor vertically lobed, ca. 0.67 mm tall, Ci unlobed, exhibiting a broad, hardening, lobe-like, translucent yellow-golden, secretion; anther wings with divergent apices, only nearly touching at the base immediately subtending the corpusculum, vertical length immediately subtending corpusculum ca. 0.09 mm long, horizontal length ca. 0.15 mm long; laminar dorsal anther appendages (Cd) absent. Pollinaria: corpuscula dark reddish-brown, ca. 0.15 mm long; pollinia borne horizontally, ovate, ca. 0.34×0.2 mm. Styler head lacking a pronounced terminal appendage, sometimes exhibiting a slightly raised, circular or angular protuberance, ca. 0.2 mm tall. Follicle (immature?) 3.7×1.4 cm, 5-winged, wings interrupted and appearing as dentate lobes, surface appearing glabrous, but minutely papillate throughout. Seeds unknown.

Distribution.—Apparently endemic to Haiti.

Additional specimens seen: **HAITI**: Massif des Cabos, Les Gonaïves, Petite-Gouyne, dry limestone region, hill-sides, in thickets, vine, fl. green, ca. 150 m, 26 Sep 1927 (fl), E.L. Ekman H9067 (C!, GH!, S!) [Referred to *G. pauciflorus*

by Urban and *M. pauciflora* by Liogier fide annotations. A handwritten note in pencil by Ekman on the S sheet indicates Ekman's suspicion of its novelty, although without recognizing salient characters: "Seems to come close to *G. pauciflorus*, but the umbellae are mostly one-flowered and the peduncle very short."; Ile la Gonave, Pte-à-Raquettes, hillsides, fl. green, 3 Aug 1927 (fl), E.L. Ekman H8809 (US!, S!) [Referred to *G. pauciflorus* by Urban and *M. pauciflora* by Liogier fide annotations. Ekman's handwritten note in pencil on the S sheet adds to the locality information: "I have not analyzed the flowers but the veg. characters seem to agree fairly well with this [*G. pauciflorus*]. Better plant. Coll. before!" However, "*pauciflorus*" was crossed out in pencil and a question mark placed above the epithet, suggesting perhaps a later second-guess by Ekman.]

Matelea pauciflora (Spreng.) Woodson, Ann. Missouri Bot. Gard. 28:226. 1941. (**Fig. 3**).

BASIONYM: *Gonolobus pauciflorus* Spreng., Systema Vegetabilium, editio decima sexta 1:846. 1824. TYPE: HISPANIOLA: 'St. Dominique,' Bertero s.n. (LECTOTYPE, here designated: P!).

Slender, woody vine. Latex unknown. Stems ca. 1.7 mm diam., pubescent throughout or in two lines, glandular-capitate trichomes ca. 0.07 mm long, eglandular sharp trichomes ca. 0.3 mm long, retrorse. Leaves opposite, simple, blades oblong or ovate, 8.5–56.5 × 5.3–27.8 mm, apices obtuse, bases rounded to truncate, margins entire, adaxial surface dull, glabrous except minutely pubescent along midvein, glandular-capitate trichomes ca. 0.05 mm long, eglandular sharp trichomes sparsely scattered, ca. 0.18 mm long, abaxial surface glabrous except pubescent along the veins, glandular-capitate trichomes ca. 0.08 mm long, eglandular sharp trichomes sparsely scattered, ca. 0.4 mm long, colleters 2; petioles 3.6–22.2 × ca. 0.4 mm, densely pubescent throughout, glandular-capitate trichomes ca. 0.1 mm long, eglandular sharp trichomes scattered throughout, ca. 0.23 mm long, predominantly antrorse or spreading; stipular colleters 2, one on each side of petiole base, ca. 0.2 mm long. Inflorescence racemiform, peduncles to 5 × ca. 0.4 mm, glabrous or pubescent, glandular-capitate trichomes ca. 0.08 mm long, eglandular sharp trichomes sparse, ca. 0.36 mm long, antrorse or spreading; pedicels to 9 × ca. 0.4 mm, densely pubescent, glandular-capitate trichomes ca. 0.05 mm long, eglandular sharp trichomes ca. 0.3 mm long, predominantly antrorse or spreading. Calyx 5-lobed, lobes lanceolate to lance-ovate, 1.3–2.5 × 0.4–1 mm, apices obtuse, bases pubescent, glandular-capitate trichomes ca. 0.05 mm long, margins with eglandular sharp trichomes ca. 0.1 mm long, otherwise glabrous; colleters 1 per sinus. Corolla subrotate, bases subcampanulate, tube ca. 0.9 × 1.2 mm, 5-lobed, lobes imbricate in bud (not dextrorse), green (fide collectoris), apparently not ocellate, linear-lanceolate, 4.7–7.5 × 2–2.8 mm, apices obtuse, margins entire, adaxial surface glabrous, abaxial surface glabrous, except tube pubescent, glandular-capitate trichomes ca. 0.05 mm long. Faucal annulus (corolline corona or Ca) indistinct. Gynostegial corona of fused staminal (Cs) and interstaminal (Ci) parts, Cs rising to meet the lower portion of the anther, rising segment swollen at the base, slightly vertically lobed along the apical ridge, ca. 1.25 mm tall, Ci unlobed, exhibiting a broad, hardening, lobe-like, translucent yellow-golden, secretion; anther wings with divergent apices, only nearly touching at the base immediately subtending the corpusculum, vertical length immediately subtending corpusculum ca. 0.08 mm long, horizontal length ca. 0.18 mm; laminar dorsal anther appendages (Cd) lacking. Pollinarium: corpuscula dark reddish-brown, 0.18–0.2 mm long; pollinia borne horizontally or at a slightly upwards angle, oblong, ca. 0.42 × 0.24 mm. Styler head with a terminal appendage, appendage volcano-shaped, ca. 0.9–1.2 mm tall. Follicle unknown.

Distribution.—Haiti and Dominican Republic.

Discussion.—Although bearing a conic terminal appendage of the styler head, *M. pauciflora* (Fig. 3) appears more closely related to *M. linearipetala* (Fig. 2) than the other three terminally-appendaged species—*M. corynephora* (Fig. 1), *M. rhynchocephala* (Fig.

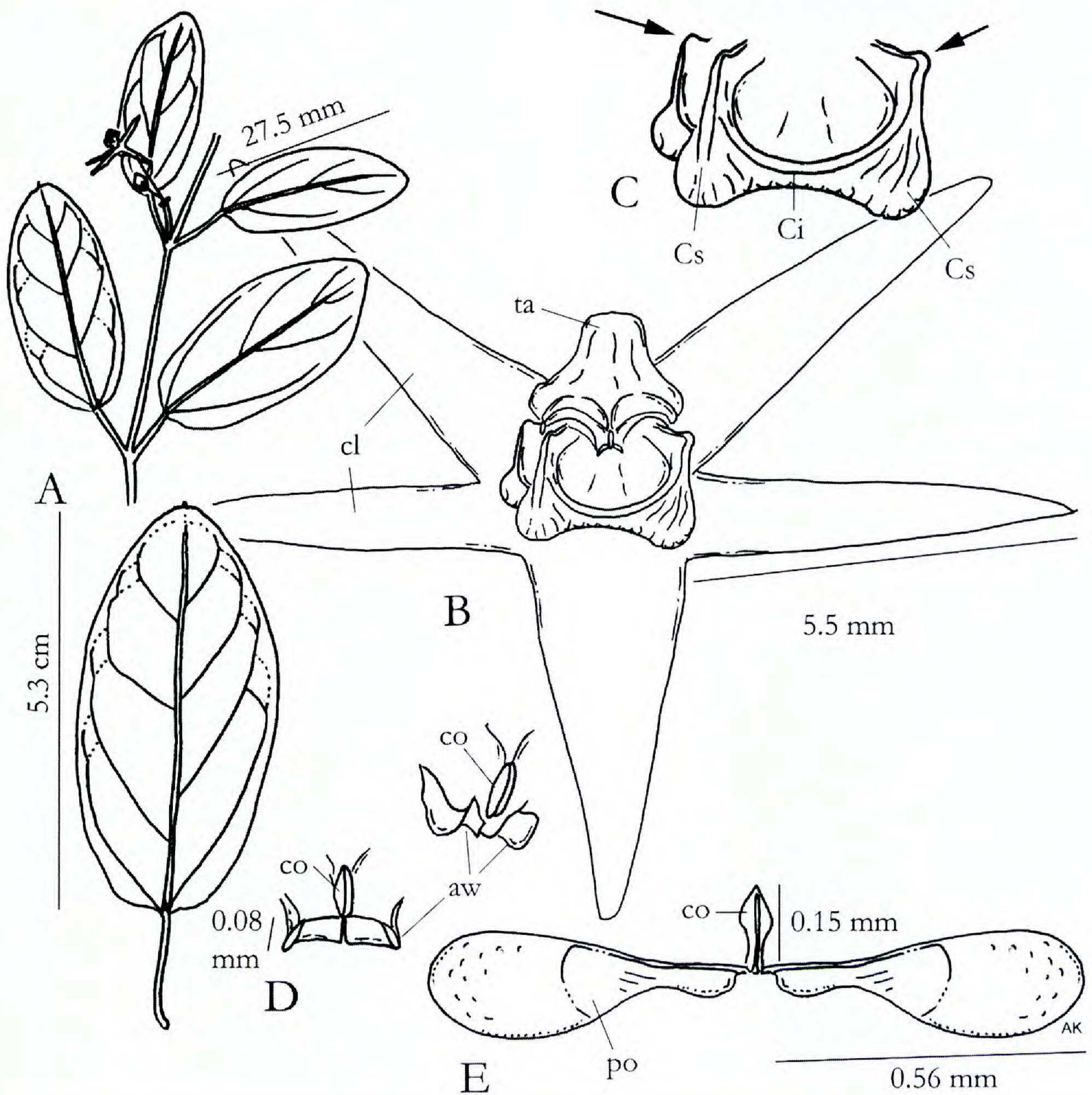


FIG. 3. *Matelea pauciflora* (Spreng.) Woodson: **A**, habit and leaf detail; **B**, flower with conic terminal appendage of stylar head; **C**, gynostegial corona—note slight vertical lobe of each Cs ridge (arrowed); **D**, corpuscula and anther wings; **E**, pollinarium, caudicle shape approximate. Based on *Ekman H6171* (K). aw = anther wings; Ci = interstaminal gynostegial corona; cl = corolla lobes; co = corpusculum; Cs = staminal gynostegial corona; po = pollinium; ta = terminal appendage of stylar head.

5), and *M. torulosa* (Fig. 6)—based on the shape of the gynostegial corona, the presence of broad, hardening, lobe-like, translucent yellow-golden, secretion in the interstaminal position, and the shape of the anther wings. *Matelea linearipetala* lacks a terminal appendage of the stylar head and can be additionally distinguished from *M. pauciflora* by the height and shape of the gynostegial corona (Fig. 2).

Additional specimens seen: **HAITI. Départ. d'Artibonite**: in a little valley not far from Mirabalais, shrubby Laubwald, 26 Oct 1924 (fl), *E.L. Ekman H2266* (GH!, IJ!, NY!, US!) [The sheet at US additionally includes the text: "on roadside, rare, 150 m." Annotations referring the specimens here appear by Urban, Woodson, and Liogier. Ekman slips in pencil are lacking.]; Massif du Nord, Hinche, Morne Juan-Gomez, oligocene limestone, in thickets, ca. 700 m, 23 May 1926 (fl), *E.L. Ekman H6171* (K!, S!) [In referring the collection only to *Poicillopsis*, Ekman's handwritten note in pencil on the S sheet indicates his unfamiliarity with the taxon. This specimen is the second

earliest of his collections in the *M. pauciflora* "complex." He is correct in noting "same as n. 2266."]. **DOMINICAN REPUBLIC.** **Prov. Azua:** Cordillera Central, 5 km al S del Pueblo de Padre Las Casas, en una lomita situada en el lado E de la carretera hacia Las Yayas, bosque seco con Ziziphus, Agave y Bursera, 18° 41'N, 70° 55'W, elev. 680–700 m, 2 Oct 1987 (fl), R. Garcia y J. Pimentel 2531 (MO!) [Referred only to *Matelea* prior to this study]; Bani, vine flowers greenish, in thickets, 24 Sep 1966 (fl), Bro. B.A. Lavastre 2290 (NY!) [Referred here by Liogier fide annotation].

***Matelea phainops* Krings, sp. nov. (Fig. 4).** TYPE: DOMINICAN REPUBLIC: vine, up to 1.5 m high, flowers yellowish green, in thickets, about 2 mi W of Oviedo, alt. about sea level, on limestone, 3 Nov 1989 (fl), A.H. Liogier 16617 (HOLOTYPE: GH!; ISOTYPES: NY!, USF!).

Species nova *Matelea* Aubl. differt a *Matelea* antillanarum forma coronae et gynostegi (v. Fig. 4).

Slender, woody vine. Latex unknown. Stems ca. 2.12 mm diam., pubescent, glandular-capitate trichomes throughout, ca. 0.12 mm long, eglandular sharp trichomes mostly in 2 lines, one on each side of the stem, retrorse, ca. 0.36 mm long. Leaves opposite, simple, blades oblong or ovate, (8–)12–31 × (–4)6–14 mm, apices obtuse, apiculate, bases broadly cuneate to rounded or subtruncate, margins entire, adaxial surface dull to somewhat glossy on drying, glandular-capitate trichomes throughout, but most dense along the veins, ca. 0.13 mm long, eglandular sharp trichomes scattered on midvein or absent, to 0.4 mm long, abaxial surface glabrous, except for short glandular-capitate trichomes along the veins, ca. 0.05 mm long, colleters 2–3; petioles to 10 × ca. 0.6 mm, glandular-capitate trichomes dense, ca. 0.1 mm long, eglandular sharp trichomes occasional or scattered, antrorse, ca. 0.22 mm long; stipular colleters 2, one on each side of petiole base, ca. 0.23 mm long. Inflorescence racemiform, peduncles to ca. 2.5 × 0.6 mm, glandular-capitate trichomes dense throughout, ca. 0.08 mm long, eglandular sharp trichomes scattered, spreading or antrorse, 0.17–0.2 mm long; pedicels 4–7 × ca. 0.36 mm, short trichomes both capitate and sharp, dense, ca. 0.09 mm long, longer eglandular sharp trichomes, if present, scattered and retrorse, ca. 0.2 mm long. Calyx 5-lobed, lobes ovate, 0.85–1.3 × 0.6–0.9 mm, apices obtuse, margins entire, glabrous, adaxial surface glabrous, abaxial surface minutely glandular pubescent; colleters 2 per sinus. Corolla subrotate, bases subcampanulate, tube ca. 0.4 × 0.5 mm, 5-lobed, lobes imbricate in bud (not or only slightly dextrorse), oblong-linear, 2.5–2.7 × 1.2–1.4 mm (width at base), apex obtuse, yellowish green (fide Liogier), each lobe bearing a white eye at its apex, adaxial surface glabrous, abaxial surface glabrous, except tube pubescent, glandular trichomes ca. 0.09 mm. Faucal annulus (corolline corona or Ca) indistinct. Gynostegial corona of fused staminal (Cs) and interstaminal parts (Ci), basally fused and appearing as a stipe, ca. 0.6 mm tall, upper Cs undulating, rising to meet the bottom of the anther in the staminal position, Ci unlobed; laminar dorsal anther appendages (Cd) absent. Pollinarium: corpuscula dark reddish-brown, ca. 0.13 mm long; pollinia borne horizontally, ovate, ca. 0.4 × 0.2 mm. Styler head lacking a terminal appendage. Follicles unknown.

Distribution.—Apparently endemic to the Dominican Republic [known only from the type].

Etymology.—This vine is named in honor of my wife, the 'Bright eyes' in my life. The epithet also reflects the ocellate corolla lobes exhibited by this species.

Discussion.—*Matelea phainops* appears related to the Cuban *Matelea oblongata*, *M. acuminata*, and *M. nipensis* (Urb.) Woodson and, perhaps, Jamaican *Jacaima costata* (Urb.) Rendle. It is one of several mostly West Indian taxa exhibiting ocellate corolla lobes. Continental representatives likely include *M. pusilliflora* W.O. Williams, *M. ocellatus* W.D. Stevens, and the recently described *M. emmartinezii* W.D. Stevens. In addition to the afore-

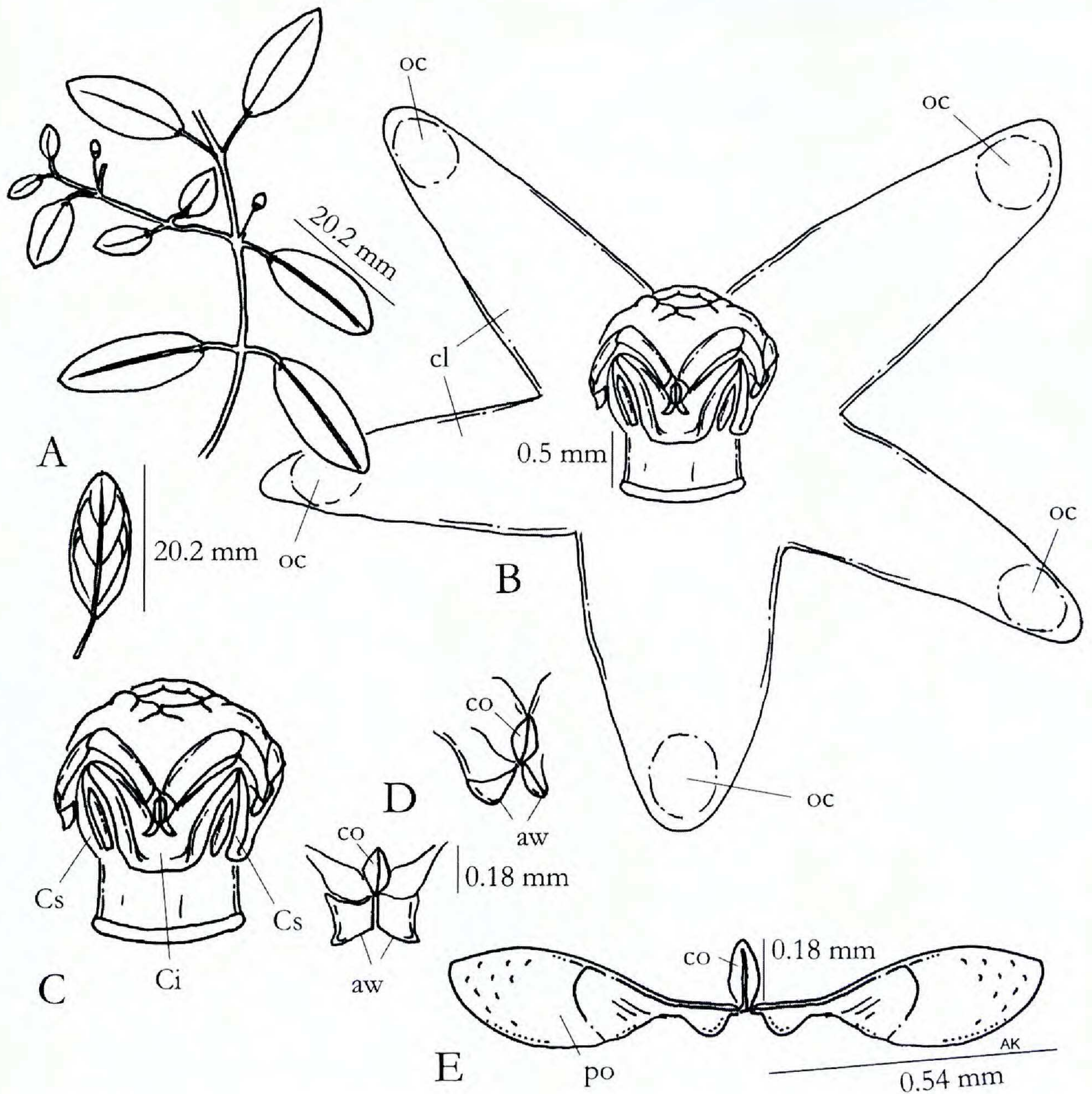


FIG. 4. *Matelea phainops* Krings: **A**, habit and leaf detail; **B**, flower—note ocellate corolla lobes; **C**, gynostegium with stipe-like base; **D**, corpuscula and anther wings; **E**, pollinarium, caudicle shape approximate. Based on *Liogier 16617* (GH). aw = anther wings; Ci = interstaminal gynostegial corona; cl = corolla lobes; co = corpusculum; Cs = staminal gynostegial corona; oc = ocellae; po = pollinium.

mentioned, small flowered species, larger flowered taxa likely belonging to the complex in the West Indies include *M. bayatensis* (Urb.) Woodson, *M. correllii* Spellman, and *M. tigrina* (Griseb.) Woodson. The latter may not be specifically distinct (see Krings 2005). The morphology of the gynostegial corona is variable in the group—from indistinct to well-developed—and additional research is necessary to clarify specific relationships.

Matelea rhynchocephala Krings, sp. nov. (**Fig. 5**). TYPE: DOMINICAN REPUBLIC. PROV. SANTIAGO: Valle del Cibao, Santiago, Hato del Yaque, in thickets, fl. green, fruiting, 15 Feb 1930 (fl & fr), *E.L. Ekman H14296* (HOLOTYPE: S!) [n.v. Urban; referred to *M. pauciflora* by Liogier fide annotation].

Species nova *Matelea* Aubl. differt a *Matelea antillanarum* corona parvilobata interstaminer, lobata staminer, gynostegio rhynchophoro.

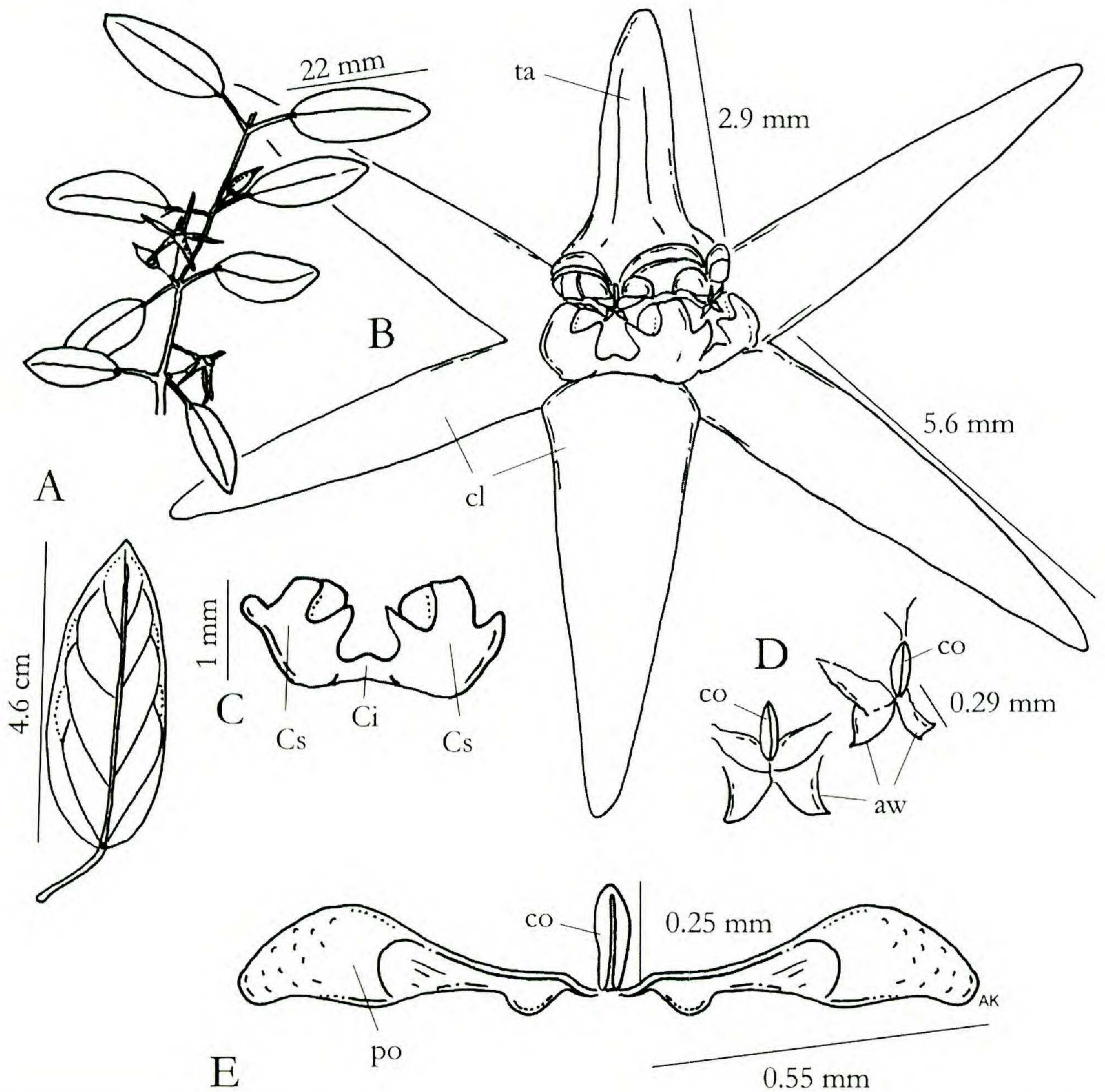


FIG. 5. *Matelea rhynchocephala* Krings: **A**, habit and leaf detail; **B**, flower; **C**, gynostegial corona—note trilobed Cs and shallow lobe of Ci; **D**, corpuscula and anther wings; **E**, pollinarium, caudicle shape approximate. Based on Ekman H14296 (S). aw = anther wings; Ci = interstaminal gynostegial corona; cl = corolla lobes; co = corpusculum; Cs = staminal gynostegial corona; po = pollinium; ta = terminal appendage of stylar head.

Slender, woody vine. Latex unknown. Stems ca. 1.2 mm diam., densely pubescent throughout, though 2 lines somewhat evident on older stems, glandular-capitate trichomes ca. 0.06 mm long, eglandular sharp trichomes ca. 0.4 mm long, retrorse or spreading. Leaves opposite, simple, blades oblong or ovate, 19–48 × 7–20 mm, apices obtuse, apiculate, bases rounded to truncate, margins entire, adaxial surface dull on drying, not glossy, glabrous or pubescent along the midvein, glandular-capitate trichomes ca. 0.1 mm long, eglandular sharp trichomes absent or essentially so, abaxial surface glabrous, pubescent along the veins, glandular-capitate trichomes ca. 0.1 mm long, eglandular sharp trichomes to 0.2 mm long, colleters 2; petioles to 14 × ca. 0.45 mm, densely pubescent, glandular-capitate trichomes ca. 0.07 mm long, eglandular sharp trichomes ca. 0.3 mm long, throughout, antrorse; stipular colleters 2, one on each side of petiole base, ca. 0.2 mm long. Inflores-

cence racemiform, peduncles ca. 0.8×0.5 mm, pubescence as that of stems; pedicels $1.7-1.8 \times$ ca. 0.44 mm, densely pubescent, glandular-capitate trichomes ca. 0.09 mm long, eglandular sharp trichomes ca. 0.2 mm long, antrorse or spreading. Calyx 5-lobed, lobes lanceolate, $1.5-1.6 \times 0.5-0.6$ mm, glandular-capitate trichomes mostly at the base, ca. 0.07 mm long, glandular sharp trichomes mostly near the middle, ca. 0.2 mm long; colleters 1 per sinus. Corolla subrotate, bases subcampanulate, tube ca. 1×1 mm, 5-lobed, lobes imbricate in bud (not or only slightly dextrorse), green (fide collectoris), linear-lanceolate, $4.9-5.9 \times 1.1-1.4$ mm, apex obtuse, margins white, adaxial surface glabrous, abaxial surface glabrous in age, except tube densely pubescent, glandular-capitate trichomes ca. 0.07 mm long. Faucal annulus (corolline corona or Ca) indistinct. Gynostegial corona of fused staminal (Cs) and interstaminal (Ci) parts, Cs rising to meet the lower portion of the anther, rising segment with a single, broad lobe on either side, ca. $0.8-0.9$ mm tall, Ci shallowly lobed; anther wings triangular in frontal view, nearly touching; laminar dorsal anther appendages (Cd) absent. Pollinarium: corpuscula dark reddish-brown, ca. 0.3 mm long, pollinia borne horizontally or with the cavity slanting upwards at an angle, ovate, ca. 0.4×0.25 mm. Styler head with a terminal appendage, appendage narrowly elongate-conical (obelisk-shaped), $2.8-3.3 \times 0.6-0.8$ mm, papillate, apex obtuse, with a tuft of eglandular trichomes or glabrous. Follicles ovate, $5.3-1.9$ cm, 5-winged, wings interrupted and appearing as dentate lobes, glabrous. Seeds ovate, ca. 4.9×3.4 mm, glabrous, margins smooth, neither warty, nor dentate.

Distribution.—Apparently endemic to the Dominican Republic.

Etymology.—The specific epithet refers to the obelisk-shaped or snout-like terminal appendage of the styler head.

Discussion.—*Matelea rhynchocephala* (Fig. 5) appears most closely related to *M. corynephora* (Fig. 1) of Haiti. Notable differences between the two are the shape of the terminal appendage of the styler head (obelisk-shaped in *M. rhynchocephala* vs. clavate in *M. corynephora*) and the shape of the gynostegial corona (Figs. 1 & 5).

Additional specimen seen: **DOMINICAN REPUBLIC**: El Rubio, 22 Nov 1940 (fl), *M. Canela s.n.* (NY!) [Referred to *M. pauciflora* by Liogier fide annotation].

Matelea torulosa Krings, sp. nov. (**Fig. 6**). TYPE: DOMINICAN REPUBLIC. DISTR. NACIONAL: Los 3 Ojos de Agua, near Santo Domingo, 31 Oct 1959 (fl), *E. Marcano [J.J. Jiménez]* 4096 (HOLOTYPE: US!) [referred to *M. pauciflora* by Liogier fide annotation].

Species nova *Matelea* Aubl. differt a *Matelea* antillanarum corona non lobata interstaminer, non lobata staminer, gynostegio toruloso.

Slender, woody vine. Latex unknown. Stems ca. 1.2 mm diam., densely pubescent in two lines, glandular-capitate trichomes ca. 0.05 mm long, eglandular sharp trichomes ca. 0.4 mm long, retrorse. Leaves opposite, simple, blades oblong or ovate, $9-28 \times 3-8.8$ mm, apices obtuse, apiculate, bases rounded or broadly cuneate, margins entire, adaxial surface dull, glabrous except pubescent along the midvein, glandular-capitate trichomes ca. 0.07 mm long, eglandular sharp trichomes sparse, to 0.18 mm long, abaxial surface pubescent primarily along the veins, glandular-capitate trichomes ca. 0.1 mm long, eglandular sharp trichomes to 0.4 mm long, colleters 2-3; petioles $2-6 \times$ ca. 0.4 mm, densely pubescent throughout, glandular-capitate trichomes ca. 0.05 mm long, eglandular sharp trichomes ca. 0.33 mm long, antrorse to antrorse-appressed, not spreading or rarely so; stipular colleters 2, one on each side of petiole base, ca. 0.22 mm long. Inflorescence racemiform, peduncles to $4.9 \times$ ca. 0.7 mm, densely pubescent throughout, glandular-capitate tri-

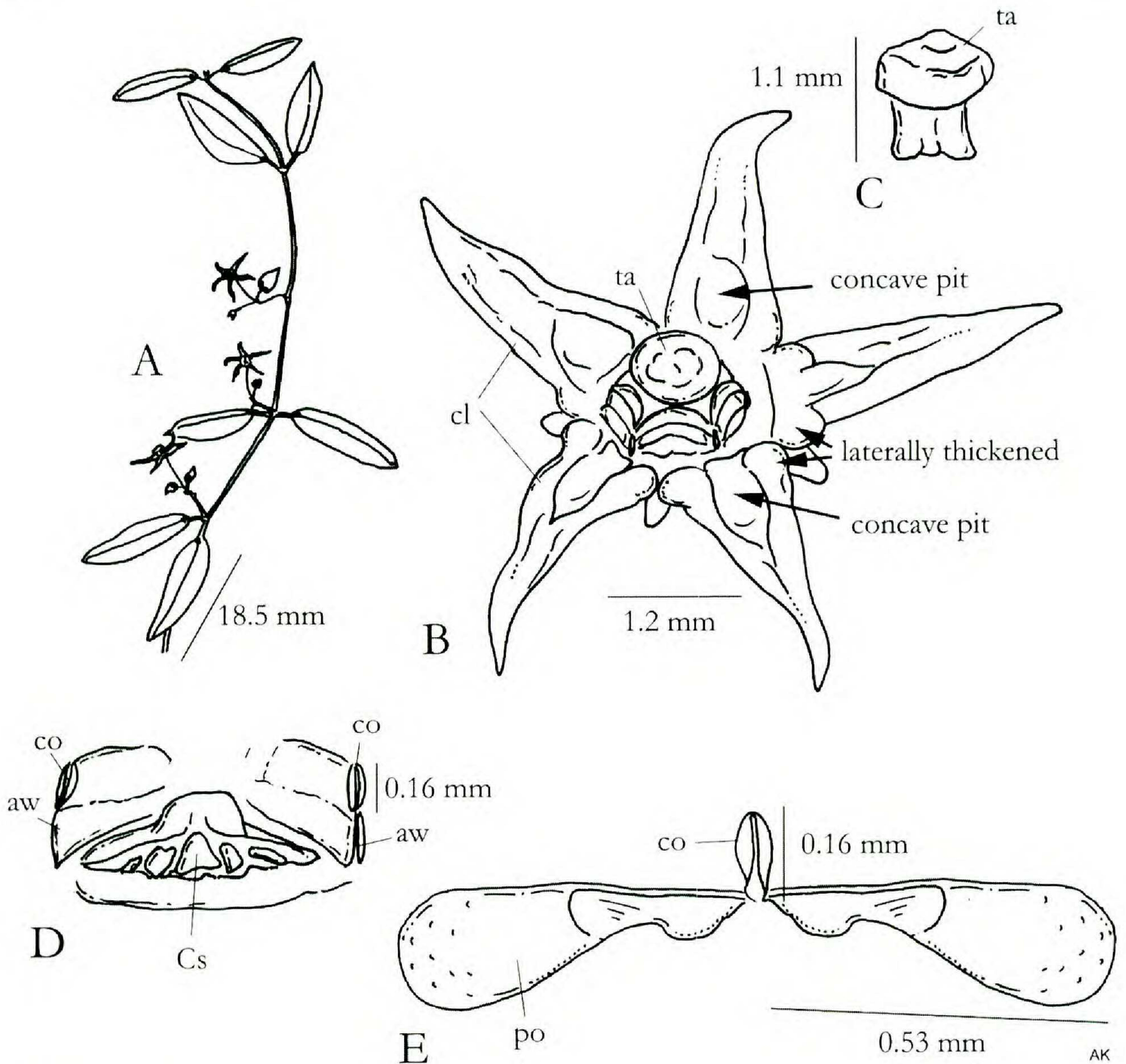


FIG. 6. *Matelea torulosa* Krings: **A**, habit; **B**, flower—note corolla lobes marginally thickened at the base, concave (“scooped-out”) and forming a distinct pit (arrowed); **C**, stylar head appendage; **D**, gynostegial corona—note long, parallel anther wings; **E**, pollinarium, caudicle shape approximate. Based on *Marcano [Jiménez] 4096* (US). aw = anther wings; Ci = interstaminal gynostegial corona; cl = corolla lobes; co = corpusculum; Cs = staminal gynostegial corona; po = pollinium; ta = terminal appendage of stylar head.

chomes ca. 0.07 mm long, eglandular sharp trichomes ca. 0.2 mm long, predominantly antrorse, some retrorse, sparser than glandular-capitate trichomes; pedicels $4.5\text{--}6.1 \times 0.4$ mm, densely pubescent, glandular-capitate trichomes ca. 0.07 mm long, eglandular sharp trichomes ca. 0.18 mm long, predominantly antrorse or antrorse appressed. Calyx 5-lobed, lobes lanceolate or lance-ovate, ca. 1.8×0.8 mm, apices obtuse, margins entire, scattered pubescent, glandular-capitate trichomes to 0.07 mm long, eglandular sharp trichomes to 0.2 mm long; colleters lacking. Corolla subrotate, bases subcampanulate, tube 0.9×1 mm, 5-lobed, lobes imbricate in bud (not dextrorse), linear-lanceolate, $4.5\text{--}5 \times 1.3\text{--}1.6$ mm, apices obtuse, margins entire, marginally thickened at the base on each side, scooped-out and forming a distinct pit near the base, otherwise plane, adaxial surface papillate, abaxial surface glabrous or with a few, eglandular sharp trichomes ca. 0.2 mm long. Faucal annulus (corolline corona or Ca) indistinct. Gynostegial corona of fused staminal (Cs) and interstaminal (Ci) parts, Cs rising to meet the lower portion of the anther, rising seg-

ment scallop-shaped in outline, ca. 0.5 mm tall, not lobed on either side, yet exhibiting a smaller segment immediately in front, margins somewhat undulating to entire, Ci unlobed; anther wings parallel, nearly touching, well-developed toward the center of the stylar head, ca. 0.4–0.5 mm long, the vertical segment immediately subtending the corpusculum ca. 0.2 mm long, slightly longer than the corpusculum or as long; laminar dorsal anther appendages (Cd) absent. Pollinarium: corpuscula dark reddish-brown, ca. 1.8–1.9 mm long; pollinia borne horizontally, ovate, ca. 0.37×0.25 mm. Stylar head with a terminal appendage, appendage capitate (“door knob-shaped”), ca. 1–1.1 mm tall, apex ca. 1 mm broad. Follicles unknown.

Distribution.—Apparently endemic to the Dominican Republic [known only from the type].

Etymology.—The epithet refers to the capitate, door knob-like terminal appendage of the stylar head.

Discussion.—The appendage is among the shortest of the four species bearing them in Hispaniola. Only *Matelea corynephora* (Fig. 1) exhibits an appendage similarly broader at the apex than at the base, but the appendage is much longer than in *M. torulosa* and clavate. The two species also differ in a number of additional floral characteristics, such as the morphology of the gynostegial corona. The other appendaged species—*M. pauciflora* (Fig. 3) and *M. rhynchocephala* (Fig. 5)—exhibit terminal appendages that are narrower at the apex than at the base.

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